



STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

JOHN ELIAS BALDACCI
GOVERNOR

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COMMISSIONER

Fiber Materials, Inc.
York County
Biddeford, Maine
A-262-71-W-R (SM)

Departmental
Findings of Fact and Order
Air Emission License

After review of the air emissions license application, staff investigation reports and other documents in the applicant's file in the Bureau of Air Quality, pursuant to 38 M.R.S.A., §344 and §590, the Department finds the following facts:

I. REGISTRATION

A. Introduction

1. Fiber Materials, Inc. (FMI) has applied to renew their Air Emission License permitting the operation of emission sources associated with their carbon composite manufacturing facility.
2. The equipment addressed in this license is located at 5 Morin Street, Biddeford, ME.

B. Emission Equipment

The following equipment is addressed in this air emission license:

Fuel Burning Equipment

<u>Equipment</u>	<u>Maximum Capacity (MMBtu/hr)</u>	<u>Maximum Firing Rate (scf/hr)</u>	<u>Fuel Type, % sulfur</u>	<u>Stack #</u>
Boiler #1	1.3	1,664	natural gas, negligible	50
Boiler #4	3.1	3,800	natural gas, negligible	52

FMI has additional natural gas fired boilers which have maximum heat inputs below significance levels. These units are noted for completeness purposes only.

Electrical Generating Equipment

<u>Equipment</u>	<u>Power Output (Hp)</u>	<u>Maximum Capacity (MMBtu/hr)</u>	<u>Fuel Type, % sulfur</u>
Bldg #1 Generator	158	1.5	diesel fuel, 0.05%
Bldg #3 Generator	295	2.0	diesel fuel, 0.05%

AUGUSTA

17 STATE HOUSE STATION
AUGUSTA, MAINE 04333-0017
(207) 287-7688 FAX: (207) 287-7826
RAY BLDG., HOSPITAL ST.

BANGOR
106 HOGAN ROAD
BANGOR, MAINE 04401
(207) 941-4570 FAX: (207) 941-4584

PORTLAND
312 CANCO ROAD
PORTLAND, MAINE 04103
(207) 822-6300 FAX: (207) 822-6303

PRESQUE ISLE
1235 CENTRAL DRIVE, SKYWAY PARK
PRESQUE ISLE, MAINE 04769-2094
(207) 764-0477 FAX: (207) 760-3143

Process Equipment

<u>Equipment</u>	<u>Pollutant</u>	<u>Pollution Control Equipment</u>
5 pairs of Impregnators	VOC	Condensers & Filters
4 Production Carbonizers	VOC	Incinerator #3
R&D Carbonizer	VOC	Incinerator #3
2 Douglas Impregnator/Carbonizer	VOC	Condensers, Filters and Incinerator #3
5 PIC Units	VOC	Wet Scrubbers
Graphitizers #22 & #23	VOC	Incinerator #4
A/B Graphitizers (7)	VOC	Incinerator #2
D/F Graphitizers (6)	VOC	Incinerator #1
GII Retort Oven	VOC	Incinerator #7
D1 Retort Oven	VOC	Incinerator #8
Gehrich #1 & #2 Retort Ovens	VOC	Incinerator #6
S1 & B1 Retort Ovens	VOC	Incinerator #5
5 Drying Ovens	VOC	None
Machine Shop	PM	Dust Collectors
R&D HAPS	HAP	None
3 Parts Washers	VOC	None

The previously licensed polyacrylonitrile graphite process is currently idle. When in operation, FMI used a wet scrubber to control exhaust gases containing HCN and NH₃ gases. The feasibility of the wet scrubber is in question. Therefore, FMI shall process a license amendment addressing control of HCN and NH₃ gases prior to resuming operation of this process.

C. Application Classification

The application for FMI does not include the licensing of increased emissions or the installation of new or modified equipment. Therefore, the license is considered to be a renewal of current licensed emission units only and has been processed through *Major and Minor Source Air Emission License Regulations*, 06-096 CMR 115 (last amended December 24, 2005). With the licensed facility wide HAP limit the facility is licensed below the major source thresholds and is considered a synthetic minor.

II. BEST PRACTICAL TREATMENT (BPT)

A. Introduction

In order to receive a license the applicant must control emissions from each unit to a level considered by the Department to represent Best Practical Treatment (BPT), as defined in *Definitions Regulation*, 06-096 CMR 100 (last amended December 24, 2005). Separate control requirement categories exist for new and existing equipment as well as for those sources located in designated non-attainment areas.

BPT for existing emissions equipment means that method which controls or reduces emissions to the lowest possible level considering:

- the existing state of technology;
- the effectiveness of available alternatives for reducing emissions from the source being considered; and
- the economic feasibility for the type of establishment involved.

B. Boilers #1 and #4

FMI operates Boilers #1 and #4 for facility heating.

The maximum heat input for each of these boilers is less than 10 MMBtu/hr. Therefore they are not subject to New Source Performance Standards (NSPS) 40 CFR Part 60, Subpart Dc, *Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units*, for units greater than 10 MMBtu/hr manufactured after June 9, 1989.

A summary of the BPT analysis for Boilers #1 (1.3 MMBtu/hr) and Boiler #4 (3.1 MMBtu/hr) is the following:

1. FMI shall fire only natural gas in Boilers #1 and #4.
2. FMI shall not exceed a facility wide natural gas fuel use limit of 100 million cubic feet, based on a 12-month rolling total.
3. *Fuel Burning Equipment Particulate Emission Standard*, 06-096 CMR 103 (last amended November 3, 1990) regulates PM emission limits for Boiler #4. The PM limits for Boiler #1 and the PM₁₀ limits for Boilers #1 and #4 are derived from the PM limits.
4. SO₂, NO_x, CO, and VOC emission limits are based upon AP-42 data dated 2/98.
5. Visible emissions from the boilers shall not exceed 10% opacity on a six (6) minute block average, except for no more than one (1) six (6) minute block average in a continuous 3-hour period.

C. Emergency Generators

FMI operates two back-up diesel generators.

Back-up generators are only to be operated for maintenance purposes and for situations arising from sudden and reasonably unforeseeable events beyond the control of the source. Back-up generators are not to be used for prime power when reliable offsite power is available. They shall also not be operated in conjunction with any voluntary demand-reduction program or any other interruptible supply arrangement with a utility, other market participant, or system operator.

Building #1 Generator and Building #3 Generator were ordered and installed prior to April 1, 2006. Therefore, these generators are not subject to New Source Performance Standards 40 CFR Part 60, Subpart IIII, *Standards of Performance for Stationary Compression Ignition Internal Combustion Engines*.

A summary of the BPT analysis for Building #1 Generator (158 Hp) and Building #3 Generator (295 Hp) is the following:

1. The emergency generators shall fire only diesel fuel with a maximum sulfur content not to exceed 0.05% by weight.
2. The emergency generators shall each be limited to 500 hr/yr of operation based on a 12 month rolling total. Compliance shall be demonstrated by a written log of all generator operating hours.
3. 06-096 CMR 106 regulates fuel sulfur content, however in this case a BPT analysis for SO₂ determined a more stringent limit of 0.05% was appropriate and shall be used.
4. The PM and PM₁₀ limits are derived from 06-096 CMR 103.
5. NO_x, CO, and VOC emission limits are based upon AP-42 data dated 10/96.
6. Visible emissions from the back-up generators shall each not exceed 20% opacity on a six (6) minute block average, except for no more than two (2) six (6) minute block averages in a continuous 3-hour period.

D. Process Emission Sources

1. Impregnation Units:

There are five pairs of impregnation vessels at this facility. One vessel from each pair is filled with pitch which is heated to approximately 270 °C to melt the pitch and reduce the viscosity to about the consistency of gasoline. The other vessel which contains the part, or "billet", to be impregnated is heated to approximately 300 °C. The vessel containing the billet is then evacuated to a pressure of -28 inches of mercury or less. The pitch is then pumped from the

melting vessel into the vessel containing the billet. The exhaust from the vacuum pump contains hydrocarbons, but these emissions are controlled first by a set of condensers followed by a set of particulate filters. Operation of the condensers in line with the filters represents BPT for each of the five pairs of impregnation units.

2. Carbonization:

FMI operates four production carbonization units and one R & D carbonizer. During the carbonization process, billets that have been impregnated with pitch or resin are heated to up to 800 °C in a nitrogen environment at atmospheric pressure. This process converts the pitch to a dense coke composed mainly of carbon. This process releases hydrocarbons that are piped to Incinerator #3 with an auxiliary heat input of 1.6 MMBtu/hr firing natural gas. The incinerator shall operate at a temperature of at least 1600 °F and have at least a 1.0 second retention time. The above conditions represent BPT for the carbonizers when processing carbon/carbon pitch.

FMI also processes a silica carbide formulation. This modified process pyrolyzes a silicon carbide mixture by heating the mixture to 900 °C in a nitrogen atmosphere. The off gassing of the pyrolysis process is 99.9% hydrogen gas, 0.08% silane and 0.02% cyclohexane.

These process gases vent to a hydrogen gas burn-off system instead of the incinerator. This system consists of a triple walled exhaust pipe which is vented through the roof above the vessel and which utilizes a draft inducer to ensure constant draw on the exhaust stack. The hydrogen gas automatically ignites in the draft induced stack and is expelled out the top of the stack at a constant velocity. A hydrogen gas alarm system is mounted outside the stack within the building above the vessel to detect any uncaptured hydrogen gas.

3. Douglas Impregnator/Carbonizers:

FMI operates two Douglas Impregnator/Carbonizers. Each one is a piece of equipment which perform the same operations as described in Section II.D.1 and 2 above in a single unit. These units are a closed system.

During the Impregnation stage, off-gassed effluent vapors are drawn from the process by a vacuum pump which is exhausted through high efficiency coalescing filters with an efficiency rating of 99.9%. A cold trap is used between the vessel and the vacuum pump system to condense out any liquid.

When processing pitch based materials, during the Carbonization stage emissions are controlled by Incinerator #3. Incinerator #3 has a capacity of 1.6 MMBtu/hr and fires natural gas. Incinerator #3 shall maintain a minimum temperature of 1600 °F and a retention time of 1.0 seconds.

When processing Phenolic Impregnated Carbon Ablative (PICA) materials, during the Carbonization stage emissions are controlled by bubbling the vessel's exhaust through a water drum which captures the Phenolic emissions. The waste water is shipped off site as hazardous waste.

BPT for this process has been determined to be exhausting through the cold trap and condensing the vapors to a liquid to be shipped off-site as hazardous waste, the exhausting of the pitch based carbonization process to Incinerator #3, and the exhausting of the PICA based carbonization process to a water drum.

4. Pressure Impregnation Carbonization (PIC) Units:
The five PIC units are used for a re-impregnation carbonization process. The PIC units are composed of a large electric furnace inside a large autoclave. The furnace heats the parts to 650 °C while argon gas is used to pressurize the vessel to 15,000 psi. PIC units K-2 and K-4 are large PIC units. PIC units K-1, K-3, and 5K are smaller units. The exhaust undergoes a tremendous pressure drop and the cooling that occurs allows some of the heavy hydrocarbons to condense out. The gases then go through a wet scrubber. Each PIC unit has its own wet scrubber. The scrubber water is sprayed into the exhaust stream then collected and re-circulated through the sprayers. BPT for FMI's PIC units shall be the operation of the scrubbers for each PIC in accordance with the manufacturer's specifications throughout each PIC's cycle.
5. Graphitizers #22 and #23:
These large graphitizers are used to convert carbon to graphite. Billets that have been carbonized are heated in nitrogen at atmospheric pressure to temperatures of up to 2750 °C. The graphitizer temperature is monitored using a thermocouple for temperatures up to 950 °C and using a two-color infrared system for temperatures greater than 950 °C. Each graphitizer exhausts to a common gas fired incinerator which has a heat input capacity of 1.6 MMBtu/hr to control emissions. The Graphitizer #22/#23 Incinerator shall maintain a minimum temperature of 1600 °F and a retention time of 1.0 seconds. This shall represent BPT for these units.
6. Graphitizer Banks A/B and D/F:
FMI operates 13 other graphitizers located in Building #3. These graphitizers are mainly used to graphitize reinforced graphite materials and insulation materials such as "FiberForm".

There are four power banks to support the graphitizers. The graphitizers supported by banks A and B (Bank A/B Graphitizers) include #1, 3, 4, 5, 12

24, & 25. The graphitizers supported by banks D and F (Bank D/F Graphitizers) include #6, 7, 11, 16, 20, & 21.

Emissions from the graphitizers are vented from the top and are drawn into ducts which lead to an incinerator. There are two incinerators that control the emissions from the graphitizers. Bank A/B Graphitizers exhaust to Incinerator #2. Bank D/F Graphitizers exhaust to Incinerator #1. Each incinerator has a heat capacity of 1.6 MMBtu/hr firing natural gas and shall attain a minimum 1600 °F temperature with a retention time of 1.0 seconds. Due to the limited power supply only one graphitizer can be run at once off of each power supply, therefore limiting the total operation to the four graph banks at any one time. The operation of the incinerators in series with the graphitizers shall represent BPT for the graphitizers.

7. Drying ovens:

FMI operates five drying ovens. These units are used in the production of FiberForm. FiberForm is made from a slurry composed of chopped carbon fibers mixed with phenol-formaldehyde resin and water. This slurry is molded into blocks or other shapes by pouring it into molds and then drawing out the water using a vacuum pump. The molds are then put into drying ovens and heated to temperatures in the range of 225 °F to 235 °F. Evaporative emissions from the drying ovens are not controlled. Based on the relatively insignificant amount of phenol/formaldehyde that could potentially be emitted, it is determined by the Bureau of Air Quality that any add on pollution control device would be economically unjustified. Therefore, BPT for the drying ovens shall be to limit emissions for each oven to the following:

Drying Oven Emissions

<u>Oven</u>	<u>VOC (lb/hr)</u>
D2	0.49
D3	0.49
D4	0.10
D7	0.06
D8	0.12

8. Retort Ovens

FMI currently operates six retort ovens (GII, D1, S1, B1, Gehnrich #1, and Gehnrich #2).

The retort ovens are used to carbonize FiberForm, adhesives and assorted rayon materials such as rayon felt, fiber, tow and staple. GII and D1 are each controlled by their own dedicated incinerator, Incinerator #7 and Incinerator #8 respectively. The S1 and B1 retort ovens share Incinerator #5. Gehnrich

#1 and Gehnrich #2 share Incinerator #6. All retort ovens with the exception of the Gehnrich models are electric ovens. The Gehnrichs are natural gas fired (1.5 MMBtu/hr each), but emissions from the fuel burning are considered minimal.

Each of the incinerators (#5, 6, 7, and 8) are 0.7 MMBtu/hr and fire natural gas. Each incinerator shall attain a minimum 1600 °F temperature with a retention time of 1.0 seconds. Control of the emissions by an incinerator shall represent BPT for the retort ovens.

For the retort ovens that share an incinerator (S1/B1 and Gehnrich #1 and #2), although the incinerators were designed to handle the effluent of both retorts running simultaneously, FMI was previously licensed to only operate one oven in the pair at a time due to limitations in graphitization capabilities. However, FMI has since increased their graphitization capabilities. Results of test collections of rayon condensate and the analysis of process data, mass balance data, and equipment design have shown that Incinerators #5 and #6 can each handle the load of both ovens in the pair operating simultaneously. Therefore, this restriction has been lifted.

9. Machine Shop

The machine shop consists of grinders, lathes and saws which create graphite dust. At each work station flexible hoses collect the dust by way of a vacuum and pass the air through cartridge or fabric dust collectors. The filtered air is then either vented back to the machine shop or is vented through the roof. The dust collectors have a rated efficiency of 99.6% at 0.1 micron. The emissions from the dust collector when vented through the roof shall not exceed an opacity of 20% for more than five minutes in any one hour period. This condition shall represent BPT for the dust collection system.

10. Miscellaneous HAP Sources

FMI has two existing research and development sources of HAPs. Both processes use the same Phenolic Resin which evolves the HAP Isopropanol. The estimated combined isopropanol emissions from the R & D processes are 250 lb/yr.

One of the processes is a Fiber Placement Process. A small quantity of phenolic resin is mixed with isopropyl alcohol in a sealed 5 gallon mixing tank. The mixture is pumped into a hand held chopper unit where it's combined with chopped quartz fibers and hydraulically sprayed onto a table mount mold. The spraying takes approximately five minutes. The molded chopped fiberboard is then placed in a small drying oven to cure for an average of three hours at 220 °F. The oven is vented through the roof.

The other process is known as 'Prepregging'. Woven cloth of various construction is dipped into the same phenolic resin. The impregnated cloth is then passed between two rollers to remove excess resin and then is placed onto a curing rack. The curing rack is rolled into a curing oven for one to two hours at 220 °F. The isopropanol is exhausted out the roof.

FMI also operates a "rod washing operation". FMI utilizes cut pieces of low-grade stainless steel wire, known as rods, for the weaving operation. When rods are required for weaving a production part, the rods must be washed to remove any grease, oil or dirt from the vendor's wire cutting process. The rods are first placed in approximately 5 gallons of water and washed in a vibrating tub for 15 minutes using 4-ounces of a concentrated cleaner. The rods are then placed in 1 gallon of isopropanol to remove all residual water to prevent rusting

FMI shall keep records, on a monthly and a 12 month rolling total basis, of the amount of isopropanol emitted from the two R & D processes and the rod washing process. Isopropanol emissions from the three processes shall be limited to 650 lb/yr.

11. Parts Washers

The Maintenance Department at FMI has three 5 gallon parts washers with Agitene as a cold cleaning solution. FMI submitted the MSDS for Agitene for the Department's file. Both units have attached covers which remain closed except when parts are being added, removed, or scrubbed as part of the cleaning process.

E. Annual Emission Restrictions

FMI shall be restricted to the following annual emissions, based on a 12 month rolling total:

Total Annual Emissions for the Facility
(used to calculate the annual license fee)

	PM	PM ₁₀	SO ₂	NO _x	CO	VOC	Single HAP	Total HAP
Facility Wide NG Firing	2.6	2.6	--	5.0	4.2	0.3	--	--
Incinerator #3	0.1	0.1	0.1	0.7	0.3	0.1	--	--
Incinerator #4	0.3	0.3	0.3	0.9	0.3	0.3	--	--
Incinerator #2	0.1	0.1	0.1	1.0	0.4	0.1	--	--
Incinerator #1	0.1	0.1	0.1	1.0	0.4	0.1	--	--
Drying Oven D2	--	--	--	--	--	2.1	--	--
Drying Oven D3	--	--	--	--	--	2.1	--	--
Drying Oven D4	--	--	--	--	--	0.4	--	--
Drying Oven D7	--	--	--	--	--	0.3	--	--
Drying Oven D8	--	--	--	--	--	0.5	--	--
Incinerator #7	0.1	0.1	0.1	0.4	0.2	0.1	--	--
Incinerator #8	0.1	0.1	0.1	0.2	0.1	0.1	--	--
Incinerator #5	0.1	0.1	0.1	0.5	0.2	0.1	--	--
Incinerator #6	0.1	0.1	0.1	0.5	0.2	0.1	--	--
Bldg #1 Generator	0.1	0.1	0.1	1.7	0.4	0.1	--	--
Bldg #3 Generator	0.1	0.1	0.1	2.2	0.5	0.2	--	--
Process Emissions	--	--	--	--	--	8.2	9.9	24.9
Total TPY	3.9	3.9	1.3	15.0	7.5	15.3	9.9	24.9

III. AMBIENT AIR QUALITY ANALYSIS

According to 06-096 CMR 115, the level of air quality analyses required for a renewal source shall be determined on a case-by case basis. Modeling and monitoring are not required for a renewal if the total emissions of any pollutant released do not exceed the following:

<u>Pollutant</u>	<u>Tons/Year</u>
PM	25
PM ₁₀	25
SO ₂	50
NO _x	100
CO	250

Based on the total facility licensed emissions, FMI is below the emissions level required for modeling and monitoring.

ORDER

Based on the above Findings and subject to conditions listed below, the Department concludes that the emissions from this source:

- will receive Best Practical Treatment,
- will not violate applicable emission standards,
- will not violate applicable ambient air quality standards in conjunction with emissions from other sources.

The Department hereby grants Air Emission License A-262-71-W-R subject to the following conditions.

Severability. The invalidity or unenforceability of any provision, or part thereof, of this License shall not affect the remainder of the provision or any other provisions. This License shall be construed and enforced in all respects as if such invalid or unenforceable provision or part thereof had been omitted.

STANDARD CONDITIONS

- (1) Employees and authorized representatives of the Department shall be allowed access to the licensee's premises during business hours, or any time during which any emissions units are in operation, and at such other times as the Department deems necessary for the purpose of performing tests, collecting samples, conducting inspections, or examining and copying records relating to emissions (38 M.R.S.A. §347-C).
- (2) The licensee shall acquire a new or amended air emission license prior to commencing construction of a modification, unless specifically provided for in Chapter 115. [06-096 CMR 115]
- (3) Approval to construct shall become invalid if the source has not commenced construction within eighteen (18) months after receipt of such approval or if construction is discontinued for a period of eighteen (18) months or more. The Department may extend this time period upon a satisfactory showing that an extension is justified, but may condition such extension upon a review of either the control technology analysis or the ambient air quality standards analysis, or both. [06-096 CMR 115]
- (4) The licensee shall establish and maintain a continuing program of best management practices for suppression of fugitive particulate matter during any period of construction, reconstruction, or operation which may result in fugitive dust, and shall submit a description of the program to the Department upon request. [06-096 CMR 115]

- (5) The licensee shall pay the annual air emission license fee to the Department, calculated pursuant to Title 38 M.R.S.A. §353. [06-096 CMR 115]
- (6) The license does not convey any property rights of any sort, or any exclusive privilege. [06-096 CMR 115]
- (7) The licensee shall maintain and operate all emission units and air pollution systems required by the air emission license in a manner consistent with good air pollution control practice for minimizing emissions. [06-096 CMR 115]
- (8) The licensee shall maintain sufficient records to accurately document compliance with emission standards and license conditions and shall maintain such records for a minimum of six (6) years. The records shall be submitted to the Department upon written request. [06-096 CMR 115]
- (9) The licensee shall comply with all terms and conditions of the air emission license. The filing of an appeal by the licensee, the notification of planned changes or anticipated noncompliance by the licensee, or the filing of an application by the licensee for a renewal of a license or amendment shall not stay any condition of the license. [06-096 CMR 115]
- (10) The licensee may not use as a defense in an enforcement action that the disruption, cessation, or reduction of licensed operations would have been necessary in order to maintain compliance with the conditions of the air emission license. [06-096 CMR 115]
- (11) In accordance with the Department's air emission compliance test protocol and 40 CFR Part 60 or other method approved or required by the Department, the licensee shall:
 - A. perform stack testing to demonstrate compliance with the applicable emission standards under circumstances representative of the facility's normal process and operating conditions:
 1. within sixty (60) calendar days of receipt of a notification to test from the Department or EPA, if visible emissions, equipment operating parameters, staff inspection, air monitoring or other cause indicate to the Department that equipment may be operating out of compliance with emission standards or license conditions; or
 2. pursuant to any other requirement of this license to perform stack testing.
 - B. install or make provisions to install test ports that meet the criteria of 40 CFR Part 60, Appendix A, and test platforms, if necessary, and other accommodations necessary to allow emission testing; and
 - C. submit a written report to the Department within thirty (30) days from date of test completion.[06-096 CMR 115]

- (12) If the results of a stack test performed under circumstances representative of the facility's normal process and operating conditions indicate emissions in excess of the applicable standards, then:
- A. within thirty (30) days following receipt of such test results, the licensee shall re-test the non-complying emission source under circumstances representative of the facility's normal process and operating conditions and in accordance with the Department's air emission compliance test protocol and 40 CFR Part 60 or other method approved or required by the Department; and
 - B. the days of violation shall be presumed to include the date of stack test and each and every day of operation thereafter until compliance is demonstrated under normal and representative process and operating conditions, except to the extent that the facility can prove to the satisfaction of the Department that there were intervening days during which no violation occurred or that the violation was not continuing in nature; and
 - C. the licensee may, upon the approval of the Department following the successful demonstration of compliance at alternative load conditions, operate under such alternative load conditions on an interim basis prior to a demonstration of compliance under normal and representative process and operating conditions.
- [06-096 CMR 115]
- (13) Notwithstanding any other provisions in the State Implementation Plan approved by the EPA or Section 114(a) of the CAA, any credible evidence may be used for the purpose of establishing whether a person has violated or is in violation of any statute, regulation, or Part 70 license requirement. [06-096 CMR 115]
- (14) The licensee shall maintain records of malfunctions, failures, downtime, and any other similar change in operation of air pollution control systems or the emissions unit itself that would affect emission and that is not consistent with the terms and conditions of the air emission license. The licensee shall notify the Department within two (2) days or the next state working day, whichever is later, of such occasions where such changes result in an increase of emissions. The licensee shall report all excess emissions in the units of the applicable emission limitation. [06-096 CMR 115]
- (15) Upon written request from the Department, the licensee shall establish and maintain such records, make such reports, install, use and maintain such monitoring equipment, sample such emissions (in accordance with such methods, at such locations, at such intervals, and in such a manner as the Department shall prescribe), and provide other information as the Department may reasonably require to determine the licensee's compliance status. [06-096 CMR 115]

SPECIFIC CONDITIONS

(16) Boiler #1

A. Boilers #1 and #4 shall fire only natural gas. [06-096 CMR 115, BPT]

B. Emissions shall not exceed the following:

Emission Unit	Pollutant	lb/MMBtu	Origin and Authority
Boiler #4	PM	0.05	06-096 CMR 115, BPT

C. Emissions shall not exceed the following [06-096 CMR 115, BPT]:

Emission Unit	PM (lb/hr)	PM ₁₀ (lb/hr)	NO _x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Boiler #1	0.07	0.07	0.13	0.11	0.01
Boiler #4	0.16	0.16	0.30	0.25	0.02

D. Visible emissions from Boiler #1 and Boiler #4 shall each not exceed 10% opacity on a six (6) minute block average, except for no more than one (1) six (6) minute block average in a continuous 3-hour period. [06-096 CMR 101]

(17) Facility Natural Gas Limit

Total natural gas use for the facility shall not exceed 100 million cubic feet per year (12-month rolling total). Compliance shall be based on fuel receipts from the supplier showing the quantity of fuel delivered. Records of annual fuel use shall be kept on a 12-month rolling total basis. [06-096 CMR 115, BPT]

(18) Emergency Generators

A. FMI shall limit each emergency generator to 500 hr/yr of operation (based on a 12 month rolling total). An hour meter shall be maintained and operated on each emergency generator. [06-096 CMR 115, BPT]

B. Building #1 Generator and Building #3 Generator shall only be operated for maintenance purposes and for situations arising from sudden and reasonably unforeseeable events beyond the control of the source. The emergency generators shall not to be used for prime power when reliable offsite power is available. The emergency generators shall also not be operated in conjunction

with any voluntary demand-reduction program or any other interruptible supply arrangement with a utility, other market participant, or system operator. A log shall be maintained documenting the date, time, and reason for operation. [06-096 CMR 115, BPT]

- C. Building #1 Generator and Building #3 Generator shall fire #2 fuel oil with a sulfur limit not to exceed 0.05% by weight. Compliance shall be based on fuel records from the supplier showing the quantity of fuel delivered and the percent sulfur of the fuel. [06-096 CMR 115, BPT]

- D. Emissions shall not exceed the following [06-096 CMR 115, BPT]:

Emission Unit	PM (lb/hr)	PM₁₀ (lb/hr)	SO₂ (lb/hr)	NO_x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Building #1 Generator	0.18	0.18	0.08	6.70	1.44	0.53
Building #3 Generator	0.24	0.24	0.10	8.82	1.90	0.70

- E. Visible emissions from Building #1 Generator and Building #3 Generator shall each not exceed 20% opacity on a six (6) minute block average, except for no more than two (2) six (6) minute block averages in a continuous 3-hour period. [06-096 CMR 101]

(19) **Impregnation Processes** [06-096 CMR 115, BPT]

(Includes 5 pair of Impregnation vessels and the impregnation stage when using the Douglas Impregnator/Carbonizers)

For all impregnation processes, FMI shall:

- A. Vent all emissions through the associated condenser and coalescent filter; and
- B. Record in a log each time a condenser and filter are drained.

(20) **Carbonizers**

(Includes the 4 production carbonizers, the R&D Carbonizer, and the carbonization stage when using the Douglas Impregnator/Carbonizers)

- A. When processing carbon/carbon pitch:

- 1. FMI shall operate Incinerator #3 to control emissions from the carbonization processes .

2. Emissions from Incinerator #3 shall not exceed the following:

	PM	PM ₁₀	SO ₂	NO _x	CO	VOC
lb/hr	0.01	0.01	0.01	0.16	0.06	0.03

3. A pyrometer or thermocouple shall be installed and maintained at that location of the incinerator or refractory lined stack which provides sufficient volume to insure a flue gas retention time of not less than 1.0 seconds at the minimum of 1600 °F.
4. FMI shall maintain a minimum temperature of 1600 °F in the incinerator at all times during a carbonization process which is required to be vented to the incinerator.
5. The temperature of the incinerator shall be recorded on a chart recorder or at a minimum of once per hour manually when any carbonizer is in operation.
6. Opacity from Incinerator #3 shall not exceed 10% opacity based on a six (6) minute block average.

[06-096 CMR 115, BPT]

- B. When processing silica carbide in the carbonizers:

1. FMI shall exhaust each carbonizer through the hydrogen burn-off system.
2. Opacity from the hydrogen burn-off system shall not exceed 10% opacity based on a six (6) minute block average.

[60-096 CMR 115, BPT]

- C. FMI shall keep a log for each carbonizer detailing dates and times of operation as well as which process was in operation.
[06-096 CMR 115, BPT]

(21) **PIC Vessels**

FMI shall operate the associated wet scrubbers throughout the reimpregnation cycle for each PIC vessel. FMI shall conduct routine inspections of the PIC unit scrubbers and keep records of such to ensure that the recirculation water, the water pumps, and the spray nozzles are sufficiently clean and maintained in good working order to ensure proper operation. [06-096 CMR 115, BPT]

(22) **Graphitizers #22 and #23** [06-096 CMR115, BPT]

- A. FMI shall operate a 1.6 MMBtu/hr incinerator to control emissions from Graphitizers #22 and #23.
- B. A pyrometer or thermocouple shall be installed and maintained at that location of the incinerator or refractory lined stack which provides sufficient volume to insure a flue gas retention time of not less than 1.0 second at the minimum of 1600 °F.
- C. FMI shall maintain a minimum temperature of 1600 °F in the associated incinerator throughout the graphitizer's cycle.
- D. The temperature of the incinerator shall be recorded on a chart recorder or at a minimum of once per hour manually when Graphitizer #22 or #23 is in operation.
- E. Emissions from the Graphitizer #22 and #23's incinerator shall not exceed the following:

	PM	PM ₁₀	SO ₂	NO _x	CO	VOC
lb/hr	0.03	0.03	0.03	0.18	0.06	0.03

- F. Opacity from the incinerator (Stack #42) shall not exceed 10% opacity based on a six (6) minute block average.

(23) **Bank A/B Graphitizers and Bank D/F Graphitizers** [06-096 CMR 115, BPT]

- A. FMI shall operate Incinerator #2 to control emissions from the Bank A/B Graphitizers.
- B. FMI shall operate Incinerator #1 to control emissions from the Bank D/F Graphitizers
- C. A pyrometer or thermocouple shall be installed and maintained at that location of the incinerator or refractory lined stack which provides sufficient volume to insure a flue gas retention time of not less than 1.0 seconds at the minimum of 1600 °F.
- D. FMI shall maintain a minimum temperature of 1600 °F in the associated incinerator throughout the graphitizer's cycle.

- E. The temperature of each incinerator shall be recorded on a chart recorder or at a minimum of once per hour manually when the associated graphitizer bank is in operation.
- F. Emissions from Incinerator #1 and Incinerator #2 shall each not exceed the following:

	PM	PM ₁₀	SO ₂	NO _x	CO	VOC
lb/hr	0.01	0.01	0.01	0.21	0.07	0.01

- G. Opacity from Incinerator #1 and Incinerator #2 shall each not exceed 10% opacity based on a six (6) minute block average.

(24) **Drying Ovens** [06-096 CMR 115, BPT]

- A. The drying ovens shall each not exceed the following VOC emission limits:

<u>Oven</u>	<u>VOC (lb/hr)</u>
D2	0.49
D3	0.49
D4	0.10
D7	0.06
D8	0.12

- B. Opacity from the drying ovens (Stacks #34, #4, #37, #14, and #35) shall each not exceed 10% opacity based on a six (6) minute block average.

(25) **Retort Ovens** [06-096 CMR 115, BPT]

- A. FMI shall operate each incinerator to control emissions while the associated retort oven is in operation and for a minimum of 6.5 hours after the temperature in the oven has decreased to below 200 °F.
- B. A pyrometer or thermocouple shall be installed and maintained at that location of the incinerator or refractory lined stack which provides sufficient volume to insure a flue gas retention time of not less than 1.0 seconds at the minimum of 1600 °F.
- C. The temperature of the incinerator shall be recorded on a chart recorder or at a minimum of once per hour manually during the carbonization process.

D. Emissions shall not exceed the following:

Oven	PM (lb/hr)	PM ₁₀ (lb/hr)	SO ₂ (lb/hr)	NO _x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Incinerator #7 (GII)	0.01	0.01	0.01	0.10	0.03	0.01
Incinerator #8 (D1)	0.01	0.01	0.01	0.04	0.02	0.02
Incinerator #5 (S1/B1)	0.01	0.01	0.01	0.11	0.04	0.01
Incinerator #6 (Gehnrich #1 & #2)	0.01	0.01	0.01	0.11	0.04	0.01

E. Opacity from the retort oven incinerators (Stacks #12, #18, #21, #40, and Gehnrich #3/#4) shall each not exceed 10% opacity based on a six (6) minute block average.

(26) **Machine Shop Dust Collector**

The emissions from the dust collector when vented through the roof shall not exceed an opacity of 20% based on a six (6) minute block average, except for more than one (1) six (6) minute block average in a 1-hour period. [06-096 CMR 101]

(27) **Facility VOC Limit**

VOC emissions from FMI shall not exceed a combined annual limit of 15.0 tons (based on a 12-month rolling total). This limit is based on the FiberForm operation and all other combined VOC emissions from the facility. Compliance with the VOC limit shall be demonstrated by record keeping including the following as necessary: usage, hours of operation, MSDS sheets or manufacturer information. [06-096 CMR 115, BPT]

(28) **HAP Limits** [06-096 CMR 115, BPT]

- A. FMI shall keep records on a monthly and 12-month rolling total basis of HAPs from the Fiber Placement Process and the 'Prepregging' process. Total HAP emissions from the two R & D processes and the rod washing process shall not exceed 650 lb/year.
- B. Facility HAP emissions shall not exceed 9.9 tons per year for any individual HAP or 24.9 tons per year for all HAPs combined (based on a 12-month rolling total). Compliance with the VOC limit shall be demonstrated by record

keeping including the following as necessary: usage, hours of operation, MSDS sheets or manufacturer information.

(29) **General Process Sources**

Visible emissions from any general process source not specifically listed above shall not exceed an opacity of 20% on a six (6) minute block average basis, except for no more than one (1) six (6) minute block average in a 1-hour period. [06-096 CMR 101]

(30) **Parts Washer**

Parts washers at FMI are subject to *Solvent Cleaners*, 06-096 CMR 130 (last amended June 28, 2004).

A. FMI shall keep records of the amount of solvent added to each parts washer. [06-096 CMR 115, BPT]

B. The following are exempt from the requirements of 06-096 CMR 130 [06-096 CMR 130]:

1. Solvent cleaners using less than two liters (68 oz) of cleaning solvent with a vapor pressure of 1.00 mmHg, or less, at 20° C (68° F);
2. Wipe cleaning; and,
3. Cold cleaning machines using solvents containing less than or equal to 5% VOC by weight.

C. The following standards apply to cold cleaning machines that are applicable sources under Chapter 130.

1. FMI shall attach a permanent conspicuous label to each unit summarizing the following operational standards [06-096 CMR 130]:
 - (i) Waste solvent shall be collected and stored in closed containers.
 - (ii) Cleaned parts shall be drained of solvent directly back to the cold cleaning machine by tipping or rotating the part for at least 15 seconds or until dripping ceases, whichever is longer.
 - (iii) Flushing of parts shall be performed with a solid solvent spray that is a solid fluid stream (not a fine, atomized or shower type spray) at a pressure that does not exceed 10 psig. Flushing shall be performed only within the freeboard area of the cold cleaning machine.
 - (iv) The cold cleaning machine shall not be exposed to drafts greater than 40 meters per minute when the cover is open.
 - (v) Sponges, fabric, wood, leather, paper products and other absorbent materials shall not be cleaned in the degreaser.
 - (vi) When a pump-agitated solvent bath is used, the agitator shall be operated to produce no observable splashing of the solvent against the tank walls or the parts being cleaned. Air agitated solvent baths may not be used.
 - (vii) Spills during solvent transfer shall be cleaned immediately. Sorbent material shall be immediately stored in covered containers.
 - (viii) Work area fans shall not blow across the opening of the degreaser

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unit.

(ix) The solvent level shall not exceed the fill line.

2. The remote reservoir cold cleaning machine shall be equipped with a perforated drain with a diameter of not more than six inches. [06-096 CMR 130]

- (31) FMI shall notify the Department within 48 hours and submit a report to the Department on a quarterly basis if a malfunction or breakdown in any component causes a violation of any emission standard (38 M.R.S.A. §605).

DONE AND DATED IN AUGUSTA, MAINE THIS 23rd DAY OF April, 2009.
DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: James P. Brookings
DAVID P. LITTELL, COMMISSIONER

The term of this license shall be five (5) years from the signature date above.

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: 9/10/08

Date of application acceptance: 9/17/08

Date filed with the Board of Environmental Protection: _____

This Order prepared by Lynn Ross, Bureau of Air Quality.

